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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/940,264	08/27/2001	Chris D. Smith	58255-8032	4539

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EXAMINER

GORDON, BRIAN R

ART UNIT	PAPER NUMBER
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1743

DATE MAILED: 03/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/940,264

Applicant(s)

SMITH ET AL.

Examiner

Brian R. Gordon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 10-13, 15-22, 25, 27 and 28 is/are rejected.
- 7) ☒ Claim(s) 7-9, 14, 23, 24 and 26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 2-3, 12-13, and 16-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 2 and 3 are directed to the type of liquid sample intended to be used with the dispensing apparatus. The liquid sample has not been positively recited as a limitation of claim 1. As such, it is unclear how the claims 2 and 3 further limit the structure of the apparatus.

Claims 12-13 and 16-17 appear to be directed to process steps or method of intended use of the device. The intended use of the device does not further limit the structure of the device.

It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-6, 10-13, 15, 18-22, 25, and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimosato US 4,864,327.

Shimosato discloses a printer comprising a plurality of recording electrodes capable of storing ink therein and jetting the ink from the respective front ends thereof, a counterelectrode disposed opposite to the recording electrodes with a recording sheet therebetween, a driving circuit for selectively applying a voltage pulses across the recording electrodes and the counterelectrode, and a pulse waveform control circuit which regulates the waveform of a voltage pulse to be applied to one of the recording

electrodes according to the operating condition of the rest of the recording electrodes or a voltage control circuit for regulating a voltage to be applied to the recording electrode so that an electric field having a fixed field intensity distribution is formed always between the recording electrode and the counterelectrode. Thus, a fixed quantity of the ink is jetted always for every printing operation from the front end each recording electrode, and thereby characters are formed in a high print quality.

In Figure 2 is disclosed a nonimpact printer invention, two parallel guide shafts 11 are extended in a main case 10, a carriage 12 is mounted slidably on the two guide shafts 11, a print head 13 (independently movable) is mounted on the carriage 12, and an elongate counterelectrode 14 is extended laterally in the direction of travel of the print head 13 in the middle section of the main case 10 opposite to the print head 13 with a fixed gap therebetween. Tractor wheels 16 are provided respectively near the opposite ends of the counterelectrode 14 to feed a recording sheet 15. A knob 17 is attached to one end of a shaft supporting the tractor wheels 16.

the print head 13 has an ink case 19 containing ink 18. A plurality of electrode holes 20 are formed in an arrangement in a vertical row in a side wall of the ink case 19 facing the counterelectrode 14. A plurality of recording electrode 21 (first electrodes) are provided in the ink case 19 (liquid support plate with plurality of liquid support regions) so that the respective front ends thereof project respectively through the electrode holes 20 toward the counterelectrode 14 (second electrode).

The recording electrodes 21 are connected electrically to the counterelectrode 14 by a driving circuit 26 comprising a power supply 24 and a switching circuit 25. The

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switching circuit 25 includes a print control circuit 27, a switching signal circuit 28 connected to the print control circuit 27, and switches 29 which are connected respectively to the recording electrodes 21. Each switch 29 has a first contact connected to a ground G, and a second contact connected through the power supply 24 to the counterelectrode 14. The power supply 24 comprises a first power supply 24a connected to the counterelectrode 14, and a second power supply 24b connected to the recording electrodes 21. The junction of the first power supply 24a and the second power supply 24b is connected to the ground G.

A pulse waveform control circuit 30 (control unit) is connected to the respective second contacts of the switches 29, to the second power supply 24b, and to the print control circuit 27. The print control circuit 27 controls the pulse waveform control circuit 30 so as to control the waveforms of voltage pulse signals to be applied to the recording electrodes 21 according to a recording electrode driving mode. More concretely, The pulse waveform control circuit 30 has, for each recording electrode 21, an input system 31 connected to the power supply 24.

Shimosato does not specifically disclose the specific numerical range of the amplitude of the applied pulse nor the pulse duration.

It would have been obvious to recognize that voltages may be applied as high, moderate, or low, for various durations as illustrated in Figures 10 and 13-16, to vary the quality of prints produced by the printing device as a result of the conditions in which the potential voltage is applied to the electrodes.

Allowable Subject Matter

7. Claims 7-9, 14, 23-24, and 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art of record does not teach nor fairly suggest a second electrode that includes a single electrode region which is relatively movable, with respect to said plate and substrate, to place the electrode region adjacent pairs of aligned liquid-support regions and sample regions; a second electrode that is disposed between said liquid-support plate and substrate, and defines an electrode gap through which a liquid droplet passes when ejected from a liquid-support region to a sample region; a second electrode that includes an electrode plate having a plurality of electrode gaps adapted to be positioned with respect to liquid-support plate so as to position each gap in alignment with an associated first-electrode connection; a method wherein the second electrode includes a single electrode which is relatively movable, with respect to said plate and substrate, to place the electrode adjacent pairs of aligned liquid-support regions and sample regions, and said placing and applying is effective to move the second electrode successively to adjacent aligned pairs of liquid-support regions and sample regions, and to apply said voltage potential pulse at each successive aligned pair; a method wherein said second electrode includes an electrode plate having a plurality of electrode gaps adapted to be positioned with respect to liquid-support plate so as to position each gap in alignment with an associated first-electrode connection, and said applying is effective

to apply said voltage potential to a selected one or more of said first-electrode connections.


Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Shvets et al., Ng, Yamada et al., Furukawa, Kietzmann et al., Williams et al., Pelc et al., Pfoest et al., McBride et al. (,106 ; ,685), McBride, Cherukuri et al., York et al., Nishikawa et al., (,585 ; ,952 ; ,956) and Nakayama (,784 ; ,098; ,204) disclose electrical dispensing devices.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian R. Gordon whose telephone number is 571-272-1258. The examiner can normally be reached on M-F, with 2nd and 4th F off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jill Warden
Supervisory Patent Examiner
Technology Center 1700

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